REMARKS

Initially, Applicants would like to thank Examiner Freeman for the time and courtesy extended to the undersigned in a telephone interview Thursday, May 12. During the interview, differences between the cited art and the claimed composite were discussed, and no agreement was reached as to patentability of the claims.

Currently, claims 2-4, 7, 8, 10-13, 15-17, 19, and 21-31 are pending in the present application, including independent claims 21 and 23 and withdrawn claims 15-17. For instance, independent claim 21 is directed to a composite that includes a polyacetal component and a thermoplastic polyamide elastomer component. More specifically, the thermoplastic polyamide elastomer component is directly molded onto the polyacetal component. The thermoplastic polyamide elastomer component is a multiblock copolymer consisting of polyamide segments and either polyether segments or polyester segments as described in formulae I and II or of the formulae I and III or of the formulae I, II, and III as found in independent claim 21.

In the Office Action, independent claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Flexman, et al. (U.S. Published Patent Application No. 2004/0121175) in view of Tanaka, et al. (U.S. Patent No. 4,376,856).

Flexman, et al. is directed to layered articles including a substrate formed of a polymer system that includes a polyoxymethylene blended with a thermoplastic polymer and a discontinuous or co-continuous layer adhered to the surface of this substrate (p. 1, ¶[0014]). As pointed out in Flexman, et al., polyoxymethylene based substrates have low levels of adhesion at their surface, and it is difficult to make layered articles (p. 1, ¶[0015]). Thus, Flexman, et al. describes a substrate including polyoxymethylene

blended with a thermoplastic polymer in which the thermoplastic polymer is at or near the surface to promote adhesion of the substrate to the layer that is applied to the surface of the this blend layer. Flexman, et al. obtains this region on or near the surface of the substrate where the non-acetal polymer typical resides because in a flowing mixture of immiscible fluids, the lowest viscosity liquid will tend to migrate to the region of the highest shear, which, in the case of injection molding, is the wall of the mold cavity (p. 2, ¶[0031]). Thus, Flexman, et al. describes a heterogeneous substrate in which the non-acetal polymer is primarily at the surface and the polyacetal is primarily deep within the substrate.

Suitable materials for overmolding disclosed by Flaxman, et al. include both specific materials, such as Kraton®, and large generic groupings of polymers, such as thermoplastic elastomers (p. 7, ¶[0092]). The specific materials taught by Flexman, et al., including Kraton®, Surlyn®, Hytrel®, polyethylene and polypropylene, do not include any polyamides, and specifically do not include any polyamide block copolymers consisting of polyamide segments and either polyether segments or polyester segments, as are found in the pending claims. The general classifications provided by Flexman, et al., e.g., thermoplastic elastomers, include a multitude of subclassifications and specific materials, and Applicants respectfully submit that such a broad disclosure can not properly be said to give guidance to one of skill in the art to any particular member of that genera, particularly given the known teaching in the art as to the difficulty in adherence between polyacetals and other materials.

Accordingly, Applicants respectfully submit that Flexman, et al. provides no guidance that would lead one of skill in the art from the overmolding materials of Flexman, et al. to the polyamide block copolymers of the pending claims.

Tanaka, et al. discloses a segmented polyether-ester amide and process for the preparation thereof (col. 1, ll. 7-9). Specifically, the polyether-ester polyamide is obtained by mixing an aminocarboxylic acid (A) having 6 to 20 carbon atoms, a poly(alkylene oxide) glycol (B) having a number average molecular weight of 300 to 6,000, and a dicarboxylic acid (C) having 4 to 20 carbon atoms at such a mixing ratio that the amount of component (B) is 5 to 90% by weight (col. 1, ll. 60-68). Accordingly, the formed terpolymer will include three distinct blocks, the first block formed of the polymerized aminocarboxylic acid, and providing a block including a series of amide groups to the formed polymer; the second block formed of the polymerized poly(alkylene oxide) glycol, and providing a block including a series of ether groups to the formed polymer; and the third block formed of the dicarboxylic acid, and providing a block including a series of ester groups to the formed polymer.

In contrast, the thermoplastic polyamide elastomer component of the composites of the pending claims consists of only two repeat blocks, the polyamide segment and either a polyester segment or a polyether segment. The polymer will not include a block providing a series of ether groups and another, separate block providing a series of ester groups, as is found in the polymer of Tanaka, et al.

Accordingly, Applicants respectfully submit that, even if combined together, as was suggested in the Office Action, the combined references would still fail to disclose the composites of the pending claims.

However, Applicants further submit that proper rationale for the suggested combination of Tanaka, et al. with Flexman, et al. does not exist. As discussed previously, given the teachings of Flexman, et al., one of skill in the art would not be led to any reasonable expectation of success in attempting to overmold a polyamide copolymer onto a polyacetal substrate, particularly given the known difficulties in adhering materials to polyacetals as Flexman, et al. itself discloses. Tanaka, et al. provides no further teaching that would overcome this lack of disclosure in Flexman, et al. Tanaka, et al. states that the polyether-ester amide may be injection molded (col. 3, ll. 51-55), but there is no suggestion that the polyamide triblock copolymer may adhere to a polyacetal.

While an analysis under 35 U.S.C. §103 need not seek out precise teachings directed to the specific subject matter of the challenged claim, there must be some reason given in the prior art why one of ordinary skill would have been prompted to modify the teachings of the references to arrive at the claimed invention. Moreover, this reason must not be based upon the teachings of the subject application. Applicants respectfully submit that given the teachings of Flexman, et al. and Tanaka, et al., one of skill in the art would simply not be led to the compositions of the pending claims. Flexman, et al. teaches a heterogeneous polyacetal blend substrate that may be overmolded with certain materials that are not polyamides and provides an extremely broad disclosure of polymeric genera. Tanaka, et al. discloses a polyamide triblock copolymer that differs from the polyamide copolymer of the pending claims. Moreover, the triblock copolymer of Tanaka, et al. is not disclosed as a material that could adhere

to a polyacetal. Absent the present disclosure, one of skill in the art would simply not be led from these teachings to the compositions of the pending claims.

It is believed that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. The Examiner is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this Amendment.

Please charge any fees required by this Amendment to Deposit Account No. 04-1403.

Respectfully submitted,

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